

INCH-POUND

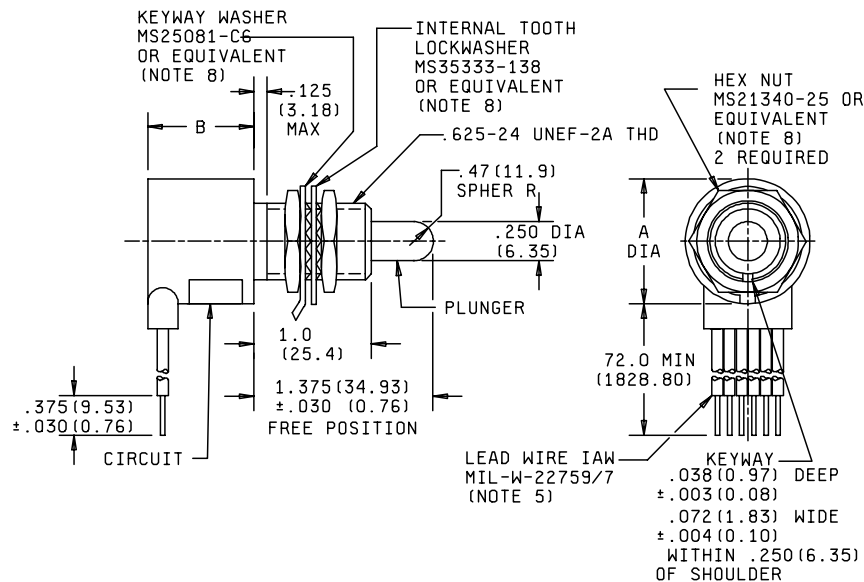
MIL-PRF-8805/80E
31 October 2001
SUPERSEDING
MIL-PRF-8805/80D
28 June 1988

PERFORMANCE SPECIFICATION SHEET

SWITCH, SENSITIVE, LIMIT, HERMETIC SEAL

This specification is approved for use by all Departments and Agencies of the Department of Defense.

The requirements for acquiring the product described herein shall consist of this specification and MIL-PRF-8805.

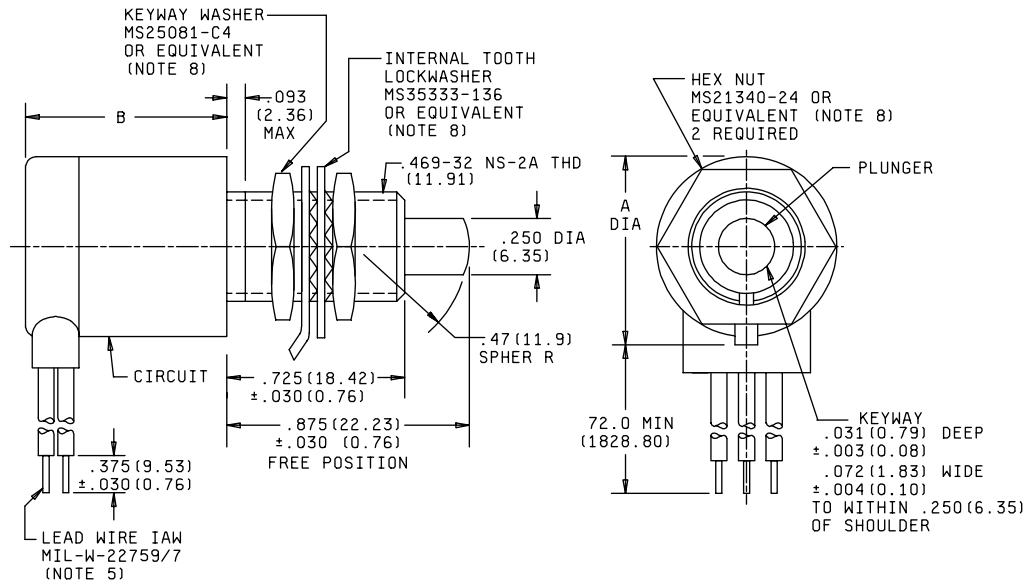


NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Unless otherwise specified, tolerances are ± 0.03 (0.8 mm) for one place decimals and ± 0.02 (0.5 mm) for two place decimals, ± 0.005 (0.13 mm) for three place decimals.
4. Configuration optional provided specified dimensions are not exceeded.
5. Lead wire shall be marked at intervals of 3.5 inches (89 mm) maximum with switch circuit identification number followed by wire gauge number (1-20). The marking shall be legible, permanent, and shall not impair the wire characteristics.
6. See table III for A and B dimensions.
7. Metric equivalents are in parenthesis.
8. Alternative base metals and protective finishes, as approved by the qualifying activity, may be utilized for hexagon nut, lock washer and key washer material. Dimensions shall be in accordance with the referenced hardware specifications.

FIGURE 1. Pin plunger switch with .625 inch (15.88 mm) threaded bushing.

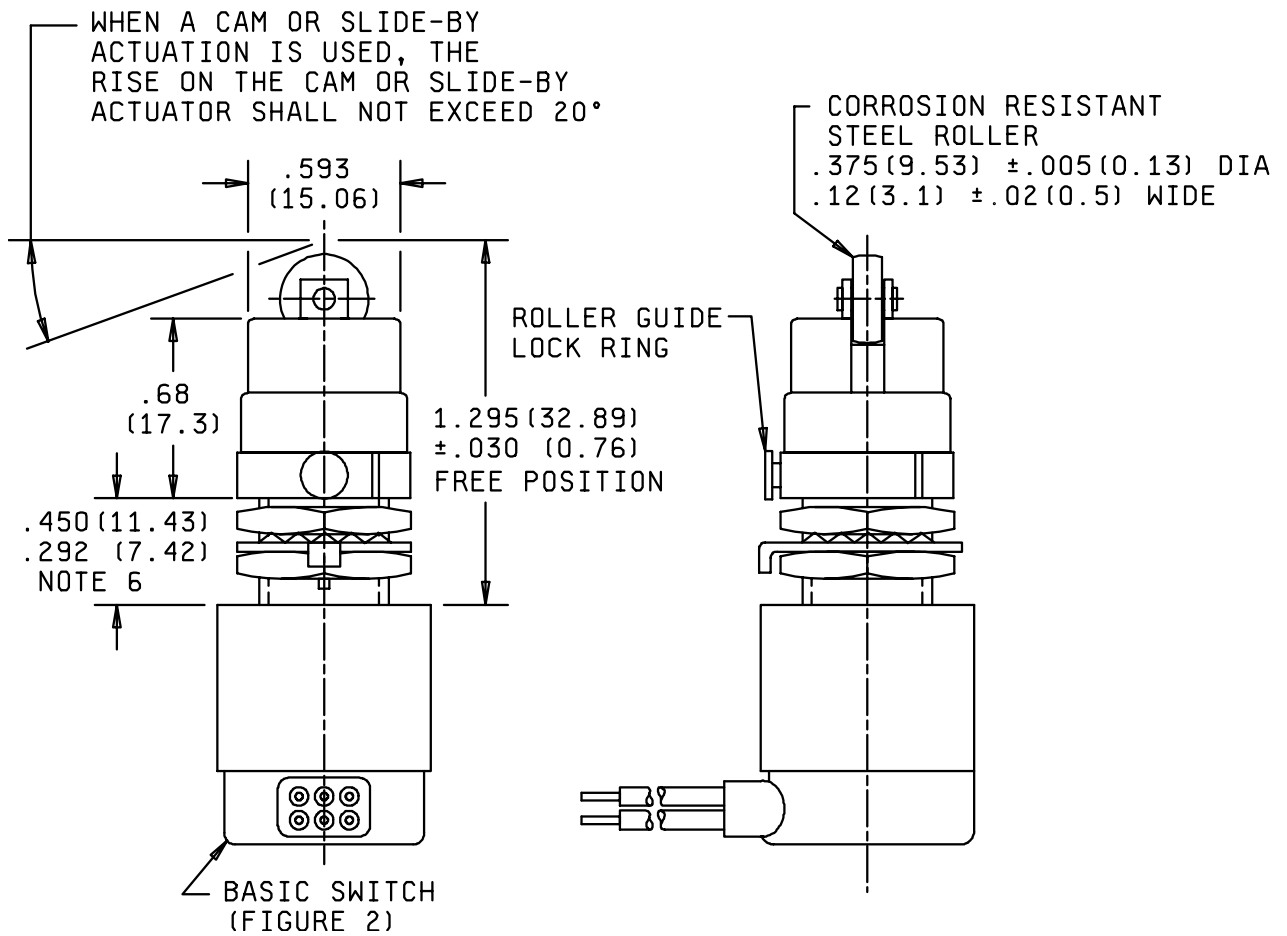
MIL-PRF-8805/80E



NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Unless otherwise specified, tolerances are $\pm .03$ (0.8 mm) for one place decimals and $\pm .02$ (0.5 mm) for two place decimals, $\pm .005$ (0.13 mm) for three place decimals
4. Configuration optional provided specified dimensions are not exceeded.
5. Lead wire shall be marked at intervals of 3.5 inches (89 mm) maximum with switch circuit identification number followed by wire gauge number (1-20). The marking shall be legible, permanent, and shall not impair the wire characteristics.
6. See table III for A and B dimensions.
7. Metric equivalents are in parenthesis.
8. Alternative base metals and protective finishes, as approved by the qualifying activity, may be utilized for hexagon nut, lock washer and key washer material. Dimensions shall be in accordance with the referenced hardware specifications.

FIGURE 2. Pin plunger switch with .469 inch (11.91 mm) threaded bushing.



NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Unless otherwise specified, tolerances are ±.03 (0.8 mm) for one place decimals and ±.02 (0.5 mm) for two place decimals, ±.005 (0.13 mm) for three place decimals
4. Configuration optional provided specified dimensions are not exceeded.
5. Lead wire shall be marked at intervals of 3.5 inches (89 mm) maximum with switch circuit identification number followed by wire gauge number (1-20). The marking shall be legible, permanent, and shall not impair the wire characteristics.
6. Roller guide shall permit positioning and locking of plunger in increments of 45° azimuth. Roller guide location can vary between .292 (7.42 mm) and .450 (11.43 mm) while maintaining .125 (3.18 mm) minimum overtravel.
7. Metric equivalents are in parentheses.

FIGURE 3. Roller plunger switch with .469 inch (11.91 mm) threaded bushing.

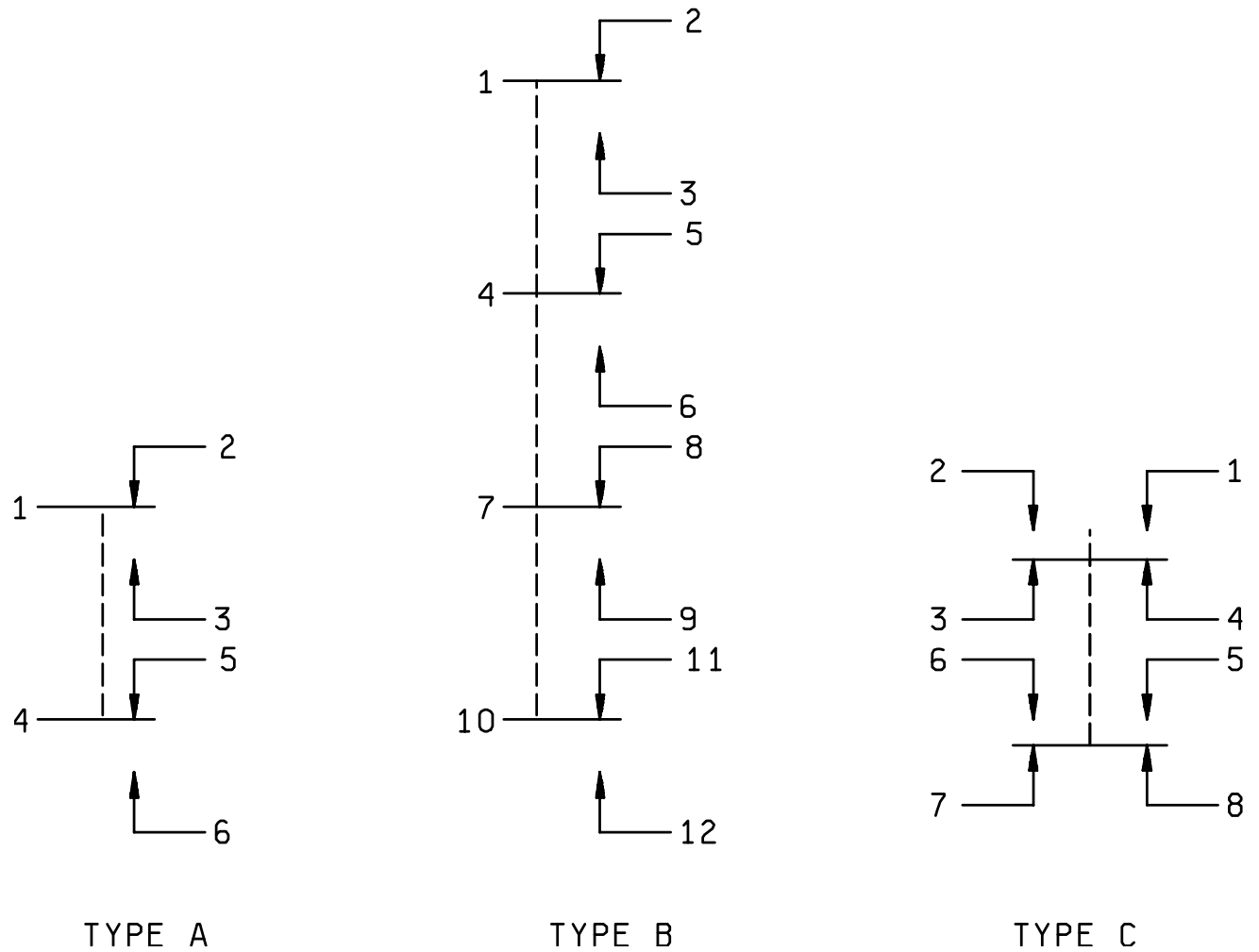


FIGURE 4. Circuit diagrams.

MIL-PRF-8805/80E

REQUIREMENTS:

Dimensions and configuration: See figures 1 through 3.

Enclosure design: 5 (hermetic) – switch chamber.

Temperature characteristic: 1 (-55°C to +125°C).

Shock type:

M8805/80-01, and M8805/80-03, through M8805/80-08: MIL-STD-202, method 213, half-sine shock pulse of 200 g amplitude with .007 second duration.

M8805/80-02:M (100 g)

Vibration grade:

M8805/80-01, and M8805/80-03 through M8805/80-08: 2 (10-2000 Hz except at 20 G's).

M8805/80-02: 1 (10 – 500 Hz).

Weight with leads:

M8805/80-01, M8805/80-03, and M8805/80-07: 7.5 ounces maximum.

M8805/80-02 and M8805/80-08: 13.5 ounces maximum.

M8805/80-04 and M8805/80-06: 12.5 ounces maximum.

M8805/80-05: 6.5 ounces maximum.

Operating characteristics: 1/

Operating force:

M8805/80-01 and M8805/80-02: 9 ±3 pounds.

M8805/80-03 through M8805/80-08: 8 pounds 8 ounces ±3 pounds 8 ounces.

Full overtravel force: 30 pounds maximum.

Release force:

M8805/80-01 and M8805/80-02: 4 pounds minimum.

M8805/80-03 through M8805/80-08: 3 pounds minimum.

Pretravel:

M8805/80-01 and M8805/80-03 through M8805/80-08: .040 (1.02 mm) maximum.

M8805/80-02: .070 (1.78 mm) maximum.

Movement differential:

M8805/80-01 and M8805/80-03 through M8805/80-08: .020 (0.51 mm) maximum.

M8805/80-02: .045 (1.14 mm) maximum.

1/ ±20 percent variation from initial values acceptable after test.

MIL-PRF-8805/80E

Overtravel:

M8805/80-01 through M8805/80-04: .250 (6.35 mm) minimum.

M8805/80-05 through M8805/80-08: .125 (3.18 mm) minimum.

Coincidence of operating and releasing points: .010 (0.25 mm) maximum.

Finish: Switch housing shall be processed to resist corrosion.

Plastic: M8805/80-02 may use general purpose mineral and flock filled phenolic internally.

Strength of actuating means: 250 pounds.

Strength of mounting bushing:

M8805/80-01 through M8805/80-04: 400 pound-inches.

M8805/80-05 through M8805/80-08: 200 pound-inches.

Contact resistance: Not applicable.

Dielectric withstanding voltage:

Sea level: 1,000 V rms. In qualification inspection table after electrical endurance, the dielectric withstanding voltage points of application between all unconnected terminals of the same pole is not applicable.

Fluid resistance: Except for the cut of the lead wire, switches shall be submerged in each of the following fluids for 2 to 2.5 minutes, which shall consist of one cycle (one cycle is 10 to 12.5 minutes total). Each switch shall be subjected to three cycles.

- a. Turbine fuel (MIL-DTL-5624).
- b. Hydraulic fluid (SAE AS1241A).
- c. Coolanol 1/ (MIL-PRF-87252).
- d. Ethylene glycol (ASTM E1119).
- e. Lubricating oil (MIL-PRF-7808)

After each immersion, the excess fluid shall be blown off the external surfaces of the switch with an air jet. Following the third cycle, the switch shall be subjected to and shall meet the requirements for dielectric withstanding voltage, insulation resistance, operating characteristics, seal, and marking.

Seal test: Only watertight test shall be performed in group A.

Sand and dust test: Applicable.

1/ Monsanto Company registered trademark.

MIL-PRF-8805/80E

Icing test:

M8805/80-01: Immersion cycles –3.

M8805/80-02 through M8805/80–08: Not applicable

Intermediate current:

M8805/80-01: 100,000 cycles.

M8805/80-02 through M8805/80–08: Not applicable.

Mechanical endurance: 100,000 cycles.

Electrical endurance: 25,000 cycles.

Electrical ratings: See table I.

Qualification group submission: See table II.

Part or Identifying Number (PIN): See table III.

TABLE I. Electrical ratings.

Load	28 V dc sea level and 100,000 ft.		
	-01	-02	-03 through –08
	(Amperes)	(Amperes)	(Amperes)
Resistive	5	10	7
Inductive	3	3	4
Motor	4	6	4

TABLE II. Qualification inspection group submission.

Examination or test	Basic switch	Other switch samples	Extent of approval
Qualification inspection table of MIL-PRF-8805	M8805/80-01	M8805/80-02 M8805/80-04 2 samples each for each electrical test. M8805/80-02 M8805/80-03 M8805/80-04 M8805/80-06 M8805/80-07 1 each shall be submitted to the following test sequence. 1. Strength of actuator means 2. Vibration 3. Shock 4. Operating characteristics	All

MIL-PRF-8805/80E

TABLE III. Part or Identifying Numbers (PIN's).

PIN M8805/80-	Figure	"A" $\pm .030$ (.76)	"B" max	Number of lead wires	Lead wire size	Circuitry type (see figure 4)
01	1	1.000 (25.4)	.980 (24.89)	6	20 AWG	A
02	1	1.500 (38.1)	1.700 (43.18)	8	18 AWG	C
03	1	.688 (17.48)	.980 (24.89)	6	20 AWG	A
04	1	1.000 (25.4)	1.500 (30.48)	12	20 AWG	B
05	2	.688 (17.48)	1.100 (26.67)	6	20 AWG	A
06	2	1.000 (25.4)	1.250 (31.75)	12	20 AWG	B
07	3	.688 (17.48)	1.100 (26.67)	6	20 AWG	A
08	3	1.000 (25.4)	1.250 (31.75)	12	20 AWG	B

Custodians:
Air Force - 11
Navy - EC
DLA -CC

Preparing activity:
DLA - CC

(Project 5930-1126-01)